REMARKS/DISCUSSION OF ISSUES

By this Amendment, Applicant amends the Abstract, amends claims 1-12, and adds new claims 13-15. Accordingly, claims 1-15 are pending in the application.

Applicant thanks the Examiner for acknowledging the claim for priority and receipt of certified copies of all the priority documents.

The "Office Action Summary" indicates that there is an objection to the drawings, but the Office Action does not indicate any reason for the objection. The Examiner is respectfully requested to indicate the basis for objecting to the drawings, or else withdraw the objection to the drawings.

Claims 1-12 are amended for non-statutory reasons, to eliminate all reference numerals. The claims are not narrowed in scope and no new matter is added.

Reexamination and reconsideration are respectfully requested in view of the following Remarks.

OBJECTIONS TO THE SPECIFICATION

The Office Action objects to the specification on various grounds.

At the outset, paragraph 1 of the Office Action objects that certain reference numerals are not used in certain places in the specification, and that one element is described by two different alternative terms.

Applicant traverses these rejections. All of the reference numerals in the drawings are used in the specification. Applicant is unaware of any rule that requires that a reference numeral be included in the specification every single time that a corresponding element in a drawing is mentioned in the specification, and the Office Action does not cite any such rule. Similarly, Applicant is unaware if any rule that prevents or limits an Applicant's freedom to describe an element using alternative terms ("*the second light refracting structure, being a second prism structure*").

Therefore, Applicant respectfully declines to amend the specification as suggested.

Next, the Office Action objects to the specification for not including section headings.

As the Office Action notes, section headings are not required.

Therefore, at this time Applicant respectfully declines to amend the specification to add section headings.

Finally, the Office Action objects to the Abstract. Without acquiescing to the objections, by this Amendment Applicant amends the Abstract.

Accordingly, for at least these reasons, Applicant respectfully requests that the objections to the specification be withdrawn.

OBJECTIONS TO THE CLAIMS

The Office Action objects to the claims on various grounds.

Regarding claim 1, Applicant respectfully submits that claim 1 is accurate as written, and it would be improper to add the words "*comprises*" or "*as*" after the phrase "*in which first light refractive structure*." The Examiner is respectfully invited to re-read the claim. Perhaps by restating the claim language here with certain modifying phrases removed for clarity, the accuracy of the claim language will become more apparent to the Examiner

> "a *first light refractive structure . . . in which . . . at least a subset of light beams . . . is refracted to illuminate the light guide exit face, and at least a subset of light beams . . . is reflected to be recycled in the light guide*."

That is, claim 1 recites a first light refractive structure in which one subset of light beams is refracted, and another subset of light beams is reflected.

Therefore, Applicant respectfully traverses the objection to claim 1.

Next, the Office Action reminds Applicant that the term "*can be*" is functional. However, Applicant notes that he is permitted to claim his invention using any proper combination of structural and functional language, and all of this language must be accorded its proper patentable weight.

Therefore, Applicant respectfully traverses the objection to the term "*can be*" used in several of the claims.

Next, the Office Action objects to certain reference numerals in some of the dependent claims.

By this Amendment, Applicant deletes all reference numerals from the claims.

Finally, the Office Action objects to the word "*is*" that supposedly appears at line 6 of claim 6.

Claim 6 only has five lines. Furthermore, the word "*is*" only appears in claim 6 as part of the following phrase:

> "*wherein . . . a dichroic coating adapted to the spectral properties of the respective light source is arranged in each aperture*"

Applicant respectfully submits that the use of the word "*is*" in this phrase is proper, and indeed required for grammatical accuracy.

Accordingly, for at least these reasons, Applicant respectfully requests that the objections to the claims be withdrawn.

35 U.S.C. §§ 102 and 103

The Office Action rejects: claims 1, 3, 4, 7, 10 and 12 under 35 U.S.C. § 102 over Gotoh et al. U.S. Patent 7,073,933 ("Gotoh"); claims 2, 8 and 9 under 35 U.S.C. § 103 over Gotoh; claim 5 under 35 U.S.C. § 103 over Gotoh in view of Ehara et al. U.S. Patent 6,601,962 ("Ehara"); and claims 6 and 11 under 35 U.S.C. § 103 over Gotoh in view of Yokoyama U.S. Patent 6,547,400 ("Yokoyama").

Applicant respectfully traverses these rejections for at least the following reasons.

Claim 1

Among other things, the illumination system of claim 1 includes a first light refractive structure in which: (1) at least a subset of light beams of a first angular interval with respect to the optical axis of the system is refracted to illuminate the light guide exit face, and (2) at least a subset of light beams of a second angular interval with respect to said optical axis is reflected to be recycled in the light guide.

Applicant respectfully submits that Gotoh does not disclose the recited first light refractive structure of claim 1.

The Office Action cites polarizing plate 20 as supposedly corresponding to the first light refractive structure of claim 1.

Applicant respectfully disagrees.

At the outset, polarizing plate 20 is not a light refractive structure.

Now the Office Action states that "*when the light beam* [62] *transfers from the light guide to the structure, the beam will be refracted due to the different refractive index (sic) of the two parts*."

However: (1) the parts apparently do not have different refractive indices; and (2) even if they did, the light beam 62 which is cited in the Office Action is normal to the interface would not be refracted.

Regarding item (1), Gotoh states that "*the light outgoing surface 16 is coated with a hard silicon resin on which a reflection-preventing film is formed . . . a similar reflection-preventing film is formed on the surface of circularly polarized plate 20 formed on the substrate 6 on the side of the light guide 10*" (col. 7, lines 18-23). See also col. 13, line 65 – col. 14, line 1. The Office Action cites nothing in Gotoh to the contrary that suggests any embodiment where light guide 10 and polarizer 20 "have different refractive indices."

Regarding item (2), the light beam 62 that the Office Action states is refracted by polarizing plate 20 is clearly normal to the interface between the light exit surface 16 and the polarizing plate 20. It is well known to anyone with a basic understanding of optics that a light beam normal to an interface will not be refracted . . . and indeed, FIG. 1B does not indicate that light beam 62 is refracted.

Furthermore, claim 1 does not merely recite a first light refractive structure. Instead, claim 1 recites a first light refractive structure in which at least a subset of light beams of a first angular interval with respect to the optical axis of the system ***is refracted to illuminate the light guide exit face.*** Now, since polarizing plate 20 in Gotoh is outside of the light guide 10, and receives the light once it has already passed through the light guide exit face 16, it would appear that polarizing plate 20

does not refract any light beams to illuminate the light guide exit face 16.

Finally, claim 1 recites that at least a subset of light beams of a first angular interval ***with respect to the optical axis of the system*** is refracted by the first light refractive structure.

The Office Action makes no mention of any optical axis of Gotoh's system.

Indeed, Gotoh's optical system does not appear to be axial, as light enters the system in a first direction, and exits the system in a second direction that is perpendicular to the first direction. Where is the optical axis of such a system?

The Examiner is respectfully requested: to identify something in Gotoh which discloses that the system has an optical axis; to identify that optical axis; and to explain how light beams 62 and 60 supposedly have a first angular interval with respect to an optical axis of the system. This will clarify the record for a subsequent appeal in the event that the present rejections of Applicant's claims are maintained.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 1 is patentable over Gotoh.

Claims 2-4, 7-10 and 12

Claims 2-4, 7-10 and 12 all depend from claim 1 and are all deemed patentable over Gotoh for at least the reasons set forth above with respect to claim 1, and for the following additional reasons.

Claim 2

Among other things, in the illumination system of claim 2, a light diffusing element arranged between the light reflective structure and the first light refractive structure to alter the angle of light beams incident on the diffusing element with respect to the optical axis.

At the outset, once again the Office Action simply ignores the plain language that the light diffusing element is provided ***to alter the angle of light beams incident on the diffusing element with respect to the optical axis***.

Respectfully, Applicant has paid the appropriate fees for all of the pending claims, and it is respectfully submitted that Applicant is entitled to a full, fair, and complete examination of all of Applicant's claims including each and every feature

recited therein. The Examiner is respectfully requested to explain where Gotoh discloses an optical axis, what that optical axis would be, and why it supposedly would have been obvious to alter the angle of light beams incident on the diffusing element with respect to that optical axis, or else withdrawn the rejection of claim 2.

Furthermore, Applicant respectfully traverses the rejection of claim 2 as lacking a factual basis and being improper under the guidelines established by the USPTO in 72 Fed. Reg. 195 at 57526 (hereinafter "The USPTO Guidelines") in light of KSR Int'l v. Teleflex, Inc., 127 S. Ct. 1727, 82 USPQ2d 1385 (2007) (hereinafter "KSR"). The USPTO Guidelines state that: "*When making an obviousness rejection, Office personnel must therefore ensure that the written record includes findings of fact concerning the state of the art and the teachings of the references applied*," and KSR requires that "[r]*ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness*."

Here, the Office Action does not provide any factual basis for its conclusory statements that: (1) "*it is well-known in the art to use additional diffusion means in combination with a light guide*"; and (2) even assuming that it was "is well-known in the art to use additional diffusion mean in combination with a light guide," that it also would have been obvious to provide such diffusion means "*between the light reflecting structure and the first light refracting structure*."

Accordingly, Applicant respectfully traverses the "obviousness" rejection of claim 2 and respectfully requests that it be withdrawn.

Claim 4

Among other things, in the illumination system of claim 4, a polarization converting element is arranged in the light guide to alter the polarization mode of light beams incident on the polarization converting element.

The Office Action cites element 19 in Gotoh as supposedly corresponding to the polarization converting element.

However, the Office Action does not cite anything in Gotoh that indicates that element 19 is a polarization converting element. Applicant respectfully submits that

element 19 is not a polarization converting element.

Accordingly, for at least these additional reasons, Applicant respectfully submits that claim 4 is patentable over Gotoh.

Claim 5

Claim 5 depends from claim 1. Applicant respectfully submits that Ehara does not remedy the shortcomings of Gotoh as set forth above with respect to claim 1. Therefore, the illumination system of claim 5 is deemed patentable over any combination of Gotoh and Ehara. Accordingly, at this time the issue of the propriety of the proposed combination is deemed moot.

Claims 6 and 11

Claims 6 and 11 depend from claim 1. Applicant respectfully submits that Yokoyama does not remedy the shortcomings of Gotoh as set forth above with respect to claim 1. Therefore, claims 6 and 11 are deemed patentable over any combination of Gotoh and Yokoyama.

Furthermore, among other things, in the illumination system of claim 6, a dichroic coating adapted to the spectral properties of the respective light source is arranged ***in each of a plurality of apertures in a light guide***.

Applicant respectfully submits that the proposed combination of Gotoh and Yokoyama would never produce an illumination system including such a feature. Nothing in these completely disparate references that pertain to completely disparate arts would even remotely suggest providing dichroic filters in each of a plurality of apertures in a light guide. The Examiner is respectfully reminded that "*using Applicants' invention as a template through a hindsight reconstruction of Applicants' claims*" is improper. Ex Parte Crawford et al., Board of Patent Appeals and Interferences, Appeal 20062429, Decided 30 May 2007.

Accordingly, for at least these additional reasons, Applicant respectfully submits that claim 6 is patentable over the cited art.

NEW CLAIMS 13-15

Claims 13-15 depend from claim 1 and are deemed patentable for at least the

reasons set forth above with respect to claim 1, and for the following additional reasons.

In the illumination system of claim 13, the subset of light beams of the first angular interval that are refracted by the first light refractive structure to illuminate the light guide exit face make an angle with respect to an optical axis normal to light guide exit face that is greater than an angle with respect to the optical axis that is made by the subset of light beams of the second angular interval that is reflected to be recycled in the light guide.

Applicant respectfully submits that Gotoh does not disclose any such features. It is also noted, in particular, that light beam 60 which makes a greater angle with respect to a line normal to the light guide exit face 16 is reflected at the light guide exit face 16, and light beam 62 which makes a smaller angle with respect to a line normal to the light guide exit face 62 passes through the light guide exit face 62. So it is not possible for Gotoh to provide the benefits of the illumination system of claim 13.

In the illumination system of claim 14, the first light refractive structure comprises a plurality of prisms.

Clearly the polarizing plate 20 in Gotoh which according to the Office Action is supposedly a "first light refractive structure" does not include any prisms, and cannot even be modified to include any prisms without destroying its ***actual*** as a circular polarizer!

In the illumination system of claim 14, the entrance face and exit face of the light guide are opposite to and in parallel with each other.

Clearly in Gotoh, the light entrance face is arranged in a plane that is perpendicular to the plane of the light exit face.

Accordingly, for at least these reasons, new claims 13-15 are all deemed patentable over the cited art.

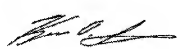
CONCLUSION

In view of the foregoing explanations, Applicant respectfully requests that the

Examiner reconsider and reexamine the present application, allow claims 1-15 and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283.0720 to discuss these matters.

Respectfully submitted,

VOLENTINE & WHITT

By: 

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